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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/504,813	02/16/2000	Shuji Goto	P99,2486	6161

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EXAMINER

CREPEAU, JONATHAN

ART UNIT	PAPER NUMBER
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1745

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DATE MAILED: 12/12/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/504,813

Applicant(s)

GOTO ET AL.

Examiner

Jonathan S. Crepeau

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mk-17

-- **Th MAILING DATE of this communication appears on th cover sheet with the correspondence address --**

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 23 October 2002.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 7-10 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 7-10 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

Response to Amendment

1. This Office action addresses claims 7, 8 and newly added claims 9 and 10. The claims are newly rejected under 35 USC §103, as necessitated by amendment. Claims 9 and 10 are also newly rejected under 35 USC §112, first paragraph, as necessitated by amendment. Accordingly, this action is made final.

Claim Rejections - 35 USC § 112

2. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

3. Claims 9 and 10 are rejected under 35 U.S.C. 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. Claim 9 recites that the wound electrodes are subjected to heat treatment "at about 70°C to about 100°C," and claim 10 recites that the duration of the heat treatment is "about ten minutes." There is not believed to be sufficient support for the term "about," as it modifies the terms "ten minutes" and "70°C, " in the application as originally filed. Page 19, line 2 of the specification discloses that the battery is allowed to stand in an oven "set to 70°C for 10 minutes." It is the Examiner's position that that this disclosure indicates a specific,

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not approximate, range to a skilled artisan, and therefore does not support recitations of "about ten minutes" or "about 70°C." See *Eiselstein v. Frank*, 34 USPQ2d 1467 (CAFC 1995), which states, in part:

We are not unresponsive to the Commissioner's argument that the word "about" in a later added claim can broaden an original disclosure that indicates to one skilled in the art that his or her invention is to a precise, not an approximate, amount, range, or limit. Under such circumstances, the term "about" in the later added claim is new matter and may not receive the benefit of an earlier filing date. The meaning of the word "about" is dependent on the facts of a case, the nature of the invention, and the knowledge imparted by the totality of the earlier disclosure to those skilled in the art.

In contrast, the recitation of "about 100°C" in claim 9 is clearly supported by the disclosure since this terminology is used verbatim at page 14, line 13 of the specification. Therefore, while the "about 100°C" limitation is supported, it is believed that the term "about" in modifying the terms "ten minutes" and "70°C," as noted above, is not supported.

Claim Rejections - 35 USC § 103

4. Claims 7-10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Narang et al (U.S. Patent 6,168,885) in view of Schneider et al (U.S. Patent 6,180,281), in further view of Gozdz et al (U.S. Patent 5,840,087).

Regarding claim 7, In Figure 1, Narang et al. generally teach a process for making a battery comprising the steps of coating a negative electrode with electrolyte (26), coating a positive electrode with electrolyte (36), and laminating the two electrode/electrolyte sheets together under heat (42) so as to form a single, continuous electrolyte. In column 10, lines 42-55, the reference teaches that the solid polymer electrolyte contains a plasticizer (swelling

solvent). Regarding claim 8, in column 11, lines 4-12, it is further taught that the electrolyte is gelled.

The reference does not expressly teach that the electrode/electrolyte sheets are wound in the lengthwise direction of the sheets (i.e., that the laminate is spirally-wound), or that the electrolyte layers are formed into a “seamless” layer, as recited in claim 7. The reference further does not expressly teach that both sides of each electrode are coated with electrolyte (claim 7), or the temperature or duration of the lamination (claims 9 and 10).

The patent of Schneider et al. is generally directed to composite separator and electrode structures comprising seamless interfaces between the separator and electrodes (see abstract).

The patent of Gozdz et al. is directed to methods of making laminated batteries. As shown in Figure 6, an electrode (67) is coated on both sides with electrolyte material (64) prior to lamination. Gozdz et al. further teach a lamination temperature of about 100-120 degrees C in column 5, lines 52-55.

Therefore, the invention as a whole would have been obvious to one of ordinary skill in the art at the time the invention was made because the artisan would be motivated by the disclosure of Schneider et al. to form the electrolyte layers of Narang et al. into a “seamless” layer. In column 6, line 30 et seq., Schneider et al. teach that “the interfaces between the advancing polymer boundaries having merged to lose completely any independent identity. The resulting structure is very pliant, translucent, and smooth, but extraordinarily strong, as shown in the Examples.” The reference further teaches in column 2, line 65 et seq. that “the resultant composite allows ions to freely migrate from the electrode domain through the separator domain

during successive charging and discharging of the battery.” Accordingly, these teachings of Schneider et al. would motivate the artisan to form a “seamless” interface between the electrolyte layers of Narang et al.

It is further noted that Narang et al. teach in column 3, line 17 that “[o]ften, the various cells are spiral wound before being provided with a protective coating.” Although this teaching appears in the discussion of the prior art, it is still considered to give the artisan sufficient motivation to make the cell of the reference a spirally-wound cell, since the spirally-wound design is known to increase the energy density of a battery by allowing a greater amount of active material in a particular volume.

Regarding the limitation in claim 7 that both sides of both electrodes are coated with electrolyte, the artisan would be sufficiently motivated to perform this step with the electrodes of Narang et al. Narang et al. teach at column 11, line 9 that “as many layers as necessary can be laminated together to provide the desired capacity of the final electrochemical cell.” This disclosure clearly indicates that both sides of each electrode may be coated (to result in, for example, a stacked cell configuration). Furthermore, as noted above, the artisan would be sufficiently motivated to use a spirally-wound configuration with the electrodes of Narang et al. In order to achieve such a configuration, the artisan would understand that an electrically insulating material would have to present on both sides of each electrode in order to prevent a short circuit. In view of Narang’s teaching of multi-layer cells above, the coating of electrolyte on both sides of each electrode would be an obvious way of eliminating such a short circuit. The artisan could further look to the patent of Gozdz et al., which, as noted above, teaches a double-

sided electrolyte coating on an electrode in Figure 6. In column 6, line 39, Gozdz et al. teach that “prior to assembly and lamination at step (c), carrier films 62 are removed (not shown) to expose the unblemished surfaces of facing separator/electrolyte layers 64, 64 which may then be laminated under reduced temperature and pressure conditions to effect a homogeneous, cohesive bond completing battery cell 50.” Thus, it is noted that Gozdz et al. also teach a “seamless” bond in addition to a double-sided electrolyte coating.

Regarding the temperature and time limitations recited in claims 9 and 10, as noted above, Gozdz et al. teach a lamination temperature of about 100-120 degrees C, which overlaps with Applicant’s claimed range of about 70-100 degrees. Accordingly, Applicant’s claimed range would be rendered obvious by the disclosure of Gozdz et al. Further, the recitation of heat treatment for “about ten minutes” is also not considered to distinguish over the references. The artisan would possess sufficient skill to manipulate the duration of the heat treatment in order to affect the characteristics of the resulting electrolyte bond while at the same time being mindful to not damage other battery components by excessive exposure to heat. It has been held that the discovery of an optimum value of a result effective variable in a known process is ordinarily within the skill of the art. *In re Boesch*, 205 USPQ 215 (CCPA 1980).

Response to Arguments

5. Applicant’s arguments filed October 23, 2002 have been fully considered but they are not persuasive. Applicants state that “Narang et al. actually teaches away from solid-electrolyte layers on both sides of the electrodes because it teaches one mechanical separator.” In response,

it is submitted that such teaching of a mechanical separator is an alternative embodiment of Narang et al. Therefore, Narang et al. do not “teach away” from solid electrolyte layers on both sides of the electrodes. Generally, disclosed examples and preferred embodiments do not constitute a teaching away from a broader disclosure or nonpreferred embodiments. *In re Susi*, 440 F.2d 442, 169 USPQ 423 (CCPA 1971); MPEP §2123.

Conclusion

6. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, THIS ACTION IS MADE FINAL. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jonathan Crepeau whose telephone number is (703) 305-0051. The examiner can normally be reached Monday-Friday from 9:30 AM - 6:00 PM EST.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Patrick Ryan, can be reached at (703) 308-2383. The phone number for the organization where this application or proceeding is assigned is (703) 305-5900. Additionally, documents may be faxed to (703) 305-5408 or (703) 305-5433.

Any inquiry of general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0661.


Patrick Ryan
Supervisory Patent Examiner
Technology Center 1700

JSC

December 5, 2002